

Patent  
Attorney's Docket No. 024705-110

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of )  
Xuelu ZOU et al. ) Group Art Unit: Unassigned  
Application No.: Unassigned ) Examiner: Unassigned  
Filed: June 29, 2001 )  
For: OPTICAL GLASS AND OPTICAL )  
PRODUCT USING THE SAME )

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination of the above-captioned patent application, kindly enter the following amendment.

**IN THE CLAIMS:**

Kindly cancel claims 20-58, and add new claims 59-107, as follows.

59. (New) The optical glass of claim 14 wherein said optical glass comprises 0-11 percent of BaO.

60. (New) The optical glass of claim 14 wherein said total quantity of Li<sub>2</sub>O, Na<sub>2</sub>O, and K<sub>2</sub>O is equal to or more than 29 percent.

61. (New) The optical glass of claim 14 wherein said optical glass has a density of oxygen atoms contained in the range of from  $4.2 \times 10^{22}$  to  $5.2 \times 10^{22}/\text{cm}^3$ .

62. (New) The optical glass of claim 15 wherein said optical glass has a density of oxygen atoms contained in the range of from  $4.2 \times 10^{22}$  to  $5.2 \times 10^{22}/\text{cm}^3$ .

63. (New) The optical glass of claim 16 wherein said optical glass has a density of oxygen atoms contained in the range of from  $4.2 \times 10^{22}$  to  $5.2 \times 10^{22}/\text{cm}^3$ .

64. (New) An optical glass comprising  $\text{P}_2\text{O}_5$ ,  $\text{B}_2\text{O}_3$ ,  $\text{WO}_3$  and an alkali metal oxide, wherein the total quantity of  $\text{P}_2\text{O}_5$  and  $\text{B}_2\text{O}_3$  is 15-35 molar percent and a content of  $\text{WO}_3$  is 2-45 molar percent and a density of oxygen atoms contained ranges from  $4.2 \times 10^{22}$  to  $5.2 \times 10^{22}/\text{cm}^3$ .

65. (New) The optical glass of claim 62 wherein said optical glass comprises 2-30 molar percent of  $\text{Li}_2\text{O}$ .

66. (New) The optical glass of claim 14 wherein said optical glass does not comprise substantial amount of  $\text{GeO}_2$ .

67. (New) The optical glass of claim 15 wherein said optical glass does not comprise substantial amount of  $\text{GeO}_2$ .

68. (New) The optical glass of claim 16 wherein said optical glass does not comprise substantial amount of GeO<sub>2</sub>.

69. (New) The optical glass of claim 62 wherein said optical glass does not comprise substantial amount of GeO<sub>2</sub>.

70. (New) The optical glass of claim 14 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C.

71. (New) The optical glass of claim 15 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C.

72. (New) The optical glass of claim 16 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C.

73. (New) The optical glass of claim 62 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C.

74. (New) The optical glass of claim 14 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

75. (New) The optical glass of claim 15 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

76. (New) The optical glass of claim 16 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

77. (New) The optical glass of claim 62 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

78. (New) The optical glass of claim 14 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

79. (New) The optical glass of claim 15 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

80. (New) The optical glass of claim 16 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

81. (New) The optical glass of claim 62 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

82. (New) An optical part being composed of the optical glass of claim 1.

83. (New) An optical part being composed of the optical glass of claim 2.

84. (New) An optical part being composed of the optical glass of claim 3.

85. (New) An optical part being composed of the optical glass of claim 10.

86. (New) An optical part being composed of the optical glass of claim 11.

87. (New) An optical part being composed of the optical glass of claim 13.

88. (New) An optical part being composed of the optical glass of claim 14.

89. (New) An optical part being composed of the optical glass of claim 15.

90. (New) An optical part being composed of the optical glass of claim 16.
91. (New) An optical part being composed of the optical glass of claim 62.
92. (New) A glass preform being composed of the optical glass of claim 1.
93. (New) A glass preform being composed of the optical glass of claim 2.
94. (New) A glass preform being composed of the optical glass of claim 3.
95. (New) A glass preform being composed of the optical glass of claim 10.
96. (New) A glass preform being composed of the optical glass of claim 11.
97. (New) A glass preform being composed of the optical glass of claim 13.
98. (New) A glass preform being composed of the optical glass of claim 14.
99. (New) A glass preform being composed of the optical glass of claim 15.
100. (New) A glass preform being composed of the optical glass of claim 16.

101. (New) A glass preform being composed of the optical glass of claim 62.

102. (New) A method of manufacturing glass preforms wherein a prescribed amount of a piece of molten glass flowing out of a flowout pipe is received in a receiving mold to prepare a glass preform made of the optical glass of claim 1.

103. (New) A method of manufacturing glass preforms made of the optical glass of claim 1, comprising the steps of :

a molten glass glob is made to fall by causing molten glass flowing out of a flowout pipe to drip naturally or by cutting with a cutting blade;

the molten glass glob is received in a depression in a forming mold, and in the process, air, a nonreactive gas or some other gas is blown out through minute holes in the depressions; and,

a layer of air is generated between the molten glass glob and the inner surface of depression in the forming mold and the molten glass glob is maintained and cooled within the depression in a state of essential non-contact with the inner surface of the depression until at least a portion of the outer surface of the molten glass glob reaches a temperature not greater than the melting temperature.

104. (New) A method of manufacturing glass products comprising the steps of:

heating the glass preform prepared by the method of claim 102; and

precisely press molding the heated glass preform to obtain a glass product.

105. (New) The optical glass of claim 15 wherein said optical glass comprises 0-11 percent of BaO.

106. (New) The optical glass of claim 16 wherein said total quantity of Li<sub>2</sub>O, Na<sub>2</sub>O, and K<sub>2</sub>O is equal to or more than 29 percent.

107. (New) A method of manufacturing glass products comprising the steps of:  
heating the glass preform prepared by the method of claim 103; and  
precisely press molding the heated glass preform to obtain a glass product.

**REMARKS**

By the present Preliminary Amendment, Applicants have canceled claims 20-58 to remove apparent errors in the numbering of the claims and to also remove the multiple dependency of the claims, new claims 59-107 have been added accordingly.

Favorable consideration on the merits is believed to be next in order, and is earnestly solicited.

Respectfully submitted,  
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